



High School Science Virtual Learning

**College Chemistry**  
**Intermolecular forces**

April 20th, 2020



## College Chemistry

### Lesson: April 20th 2020

#### **Objective/Learning Target:**

**The Learner will be able to; 1. Describe the types of intermolecular forces 2. identify the type of intermolecular force experienced by a molecular based on its structure 3. Explain the relationship between intermolecular force and changes in physical state, (melting, boiling)**



Bell Ringer

Question 1

What are the 3 common states of matter?

Question 2

Describe at the molecular level what happens when a material melts?



## Bell Ringer Answers:

1. Solid, Liquid, Gas
2. In a solid the particles are locked in to place, they vibrate but they do not move around. When a material gains enough energy the vibration becomes great enough to slide past one another. This allows movement but they do not break apart completely from one another.



Read [Section 10.1](#) in your textbook, and watch the videos below:

[Intermolecular Forces and Boiling Points-Prof. Dave \(10:53\)](#)

[Intermolecular Forces-The Science Classroom \(7:35\)](#)

Be sure to check out the extra videos on the last slide for some at home experiments, and real world applications.



Questions:

1. What is the difference between Intramolecular forces and Intermolecular forces?
2. Put the intermolecular forces in order from Weakest to strongest.
3. What is required for Hydrogen Bonding?

## Answers:

1. Intramolecular forces are the forces inside a molecule (between atoms) holding them together (ionic, covalent bonds) Intermolecular forces are between molecules holding the molecules close together. Like **inter**state highways go between states.

2. London Dispersion Force (now just called dispersion force) < dipole-dipole < ion-dipole < hydrogen bonding



Answers: (cont)

3. Hydrogen must be present in the molecule and bond to one of three highly electronegative atoms, F, O, N.





You try:

Answer the end of chapter question found here [Chapter 10 review](#). #5, 7, 9, 11, 15, 17 Check your answers in the back of the book, or by click in the number of the question in the review.

[Quizizz on intermolecular forces](#)



Further explanations:

[Intermolecular Forces-Brightstorm\(5:39\)](#)

[Intermolecular Forces-Sonya Birazian \(12:19\)](#)



Extra videos:

Cool Experiments you can do at home!!!!

[Seven Science Experiments with Surface Tension-Physics Girl](#)

The Van Der Waals forces behind geckos walking on walls

[Smart materials \(1 of 5\): Gecko Adhesive fit for Spiderman](#)